

BS 8243:2010+A1:2014



BSI Standards Publication

Installation and configuration of intruder and hold-up alarm systems designed to generate confirmed alarm conditions – Code of practice

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Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 May 2010. It was prepared by Subcommittee GW/1/2, *Installed alarm systems*, under the authority of Technical Committee GW/1, *Electronic security systems*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

BS 8243:2010 superseded DD 243:2004 which was withdrawn on 31 May 2012.

BS 8243:2010+A1:2014 supersedes BS 8243:2010, which is withdrawn.

Information about this document

BS 8243:2010 was a full revision of DD 243, and introduced the following principal changes:

- added recommendations for the use of confirmed hold-up alarms (HUAs); and
- provided guidance to manufacturers in producing compliant equipment for use in confirmed alarm I&HAS.

Text introduced or altered by Amendment No. 1 is indicated in the text by tags **A1** **A1**. Minor editorial changes are not tagged.

Amendment A1 introduces the following principal changes:

- clarification of two-stage security setting
- clarification of protection levels of installation

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

The word "should" is used to express recommendations of this standard. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the Clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard gives recommendations for the design, installation and configuration of intrusion and hold-up alarm systems (I&HASs) that incorporate alarm confirmation technology, where such I&HASs have signalling systems that signal to an alarm receiving centre (ARC) and require a police response.

It includes recommendations intended to minimize the likelihood of false alarms.

It is intended to be read in conjunction with BS EN 50131 (as implemented by PD 6662).

If HUA confirmation is to be included in the installation, then the relevant clauses of this standard apply.

NOTE HAS alarm confirmation may be used as required in the ACPO/ACPOS Security Systems policies [1] [2].

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the publication (including any amendments) applies.

BS 5979, *Remote centres receiving signals from fire and security systems – Code of practice*

BS 8473, *Intruder and hold-up alarm systems – Management of false alarms – Code of practice*

BS EN 50131 (all parts), *Alarm systems – Intrusion and hold-up systems*

BS EN 50131-1¹⁾, *Alarm systems – Intrusion and hold-up systems – Part 1: System requirements*

BS EN 50131-3, *Alarm systems – Intrusion and hold-up systems – Part 3: Control and indicating equipment*

BS EN 50136 (all parts), *Alarm systems – Alarm transmission systems and equipment*

DD CLC/TS 50131-7, *Alarm systems – Intrusion systems – Part 7: Application guidelines*

PD 6662, *Scheme for the application of European Standards for intruder and hold-up alarm systems*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in the BS EN 50131 series, the BS EN 50136 series and the following apply.

¹⁾ Subclauses **A.2.1**, **H.7.1**, **H.7.2**, **H.8** and **H.9** make normative reference to BS EN 50131-1:2006+A1:2009.

- 3.1.1 alarm call**
communication from an ARC to the appropriate party (or parties), which indicates that an alarm condition has occurred at a supervised premises, or which provides supplementary information concerning a previously reported alarm condition
- 3.1.2 alarm filtering**
procedure whereby remotely notified alarm conditions are intentionally held at an ARC and their status reviewed for the purpose of cancelling certain alarm conditions, where such cancellation is authorized by the client
- 3.1.3 alarm receiving centre**
continuously manned centre to which information concerning the status of one or more I&HAS is reported
- 3.1.4 alarm signal**
signal which, upon being received at an ARC, or upon being received and processed at an ARC, identifies a remotely notified alarm condition
- 3.1.5 ancillary control equipment**
equipment used for supplementary control purposes
- 3.1.6 as-fitted document**
document in which details of the I&HAS actually installed are recorded
- 3.1.7 audibly confirmed**
designation at an ARC by interpreting audio information received from the supervised premises and determination of a high probability that a genuine alarm has occurred
- 3.1.8 audio listening device**
component for converting sound waves into electrical energy variations for subsequent re-conversion into sound waves
NOTE A microphone is an example of an ALD.
- 3.1.9 audio monitoring device**
component which is activated by sounds above a specific threshold
NOTE Typically, an AMD would incorporate a microphone.
- 3.1.10 client**
person or organization purchasing the I&HAS and/or other alarm services from an alarm company and/or ARC
- 3.1.11 confirmation time**
time allowed for a sequentially confirmed alarm to occur after an unconfirmed alarm has occurred
- 3.1.12 confirmed alarm**
condition that follows after two independent actions or signals have been generated from an audible, visual, or sequential source confirming that there is or has been a high probability of genuine alarm has occurred
- 3.1.13 control and indicating equipment**
equipment for receiving, processing, controlling, indicating and initiating the onward transmission of information
- 3.1.14 digital key**
device used for setting and/or unsetting an IAS which can be removed from the supervised premises
NOTE Formerly known as "portable ACE" or "PACE".

3.1.15 digital key reader

fixed equipment which enables IAS to be unset using a digital key and which is incorporated within CIE, or ACE, or be a separate item or subsystem to provide the required functionality

3.1.16 dual technology movement detector

detection device that employs two different sensing technologies monitored by a common processor with a common alarm output

3.1.17 duress

notification of an alarm condition resulting from a discreet user action during unsetting without use of a HD (e.g. a special code), specifically intended for use when the user is under coercion

3.1.18 extended format reporting

notification to an alarm transmission system of which specific parts of an I&HAS have activated, generally in circuit, zone or area format

3.1.19 false alarm

policed alarm condition other than a genuine alarm

3.1.20 false alert

remotely notified alarm condition which is regarded by the ARC as cancelled, such cancellation having been authorized by the client

3.1.21 final exit door

door designated for exit from the supervised premises

3.1.22 genuine alarm

policed alarm condition which has resulted from:

- a) a criminal attack, damage, or attempt at such, upon/to the supervised premises, the alarm equipment or the transmission path carrying the alarm signal; or
- b) actions by emergency services in the execution of their duties; or
- c) a call emanating from a HAS made to summon urgent assistance when an assailant enters a previously defined area with the intention of harming or threatening any person within that defined area.

3.1.23 imaging device

device that converts an optical image into an electrical signal

NOTE A camera is an example of an imaging device.

3.1.24 initial entry door

door designated for entry to the supervised premises

3.1.25 listen-in

action, by an ARC, of listening to stored audio and/or to live audio received from the supervised premises

3.1.26 live audio

information of an audible nature that is occurring in real time

3.1.27 mis-operation signal

signal that is identifiable at the ARC as indicating that the I&HAS has mis-operated and therefore that the remotely notified alarm condition is to be cancelled and regarded as a false alert

NOTE The designation of a particular type of signal as a mis-operation signal is therefore a matter for agreement between the alarm company and ARC, with the concurrence of the client.

3.1.28 multi action hold-up device

device capable of sending two or more unambiguous signals or messages to the CIE as a result of two or more different methods of operation

NOTE An example of a different method of operation could be the simultaneous push of two buttons to create an unconfirmed alarm followed by holding in the same two buttons a second time for a pre-determined period to create a confirmed alarm.

3.1.29 notification

passing of an alarm, tamper or fault condition to WDs and/or alarm transmission systems

3.1.30 remotely notified alarm condition

state of monitoring equipment at an ARC, which indicates an alarm condition

NOTE This does not preclude other signals (e.g. unset, set, mis-operation, fault, etc.) being received at an ARC.

3.1.31 restore

procedure of cancelling an alarm, tamper, fault or other condition and returning the I&HAS to a previous condition

3.1.32 sequentially confirmed

condition emanating from two or more independent detectors, which are configured such that there is a high probability that a genuine intrusion or a genuine attempted intrusion has occurred

3.1.33 shunt lock

door lock incorporating a switching device within the lock case

3.1.34 stored audio

recording(s) in an audible format made at a supervised premises during, before and after the time of an alarm condition

3.1.35 supervised premises

part of a building and/or area in which an intrusion, attempted intrusion, or the triggering of a HD can be detected by an I&HAS

3.1.36 system design proposal

specification document for a proposed I&HAS, listing the equipment and components to be supplied detailing their proposed locations and containing a general indication of their coverage or purpose

3.1.37 tamper detection

detection of deliberate interference with an I&HAS or part thereof

3.1.38 transmission fault signal

indication of a fault in the alarm transmission path

3.1.39 unconfirmed alarm

signal that has not been designated as audibly confirmed, visually confirmed or sequentially confirmed

3.1.40 user

person authorized to operate an I&HAS

NOTE The client (subscriber) can also be a user.

3.1.41 video monitoring device

component that is activated by disturbances above a specific threshold

NOTE Typically a VMD would be incorporated into an imaging device.

3.1.42 visually confirmed

designation by an ARC by interpreting visual information received from the supervised premises and determining that there is a high probability that a genuine alarm has occurred

3.2 Abbreviations

For the purposes of this British Standard the following abbreviations apply.

ACE	Ancillary Control Equipment
ALD	Audio Listening Device
AMD	Audio Monitoring Device
ARC	Alarm Receiving Centre
CIE	Control and Indicating Equipment
HD	Hold-up Device
HUA	Hold-up Alarm
HAS	Hold-up Alarm System
I&HAS	Intruder and Hold-up Alarm System
IAS	Intruder Alarm System
VMD	Video Monitoring Device
WD	Warning Device

4 Primary design and configuration objectives**4.1 Design objectives****4.1.1 General**

Alarm companies should advise clients to consult with their insurer in relation to any new I&HAS, or modification of an existing I&HAS, conforming to this British Standard.

4.1.2 Design objectives for intruder alarm systems (IAS)

IASs should be designed, installed and configured in accordance with the recommendations given in this British Standard to:

- a) provide effective confirmation facility;
- b) minimize the likelihood of false alarms.

IASs incorporating alarm confirmation technology should be designed, installed and configured in accordance with Clause 5 and Annex A.

NOTE 1 The provision of alarm confirmation technology helps minimize false alarms (see 4.2).

NOTE 2 Recommendations for other measures to minimize the likelihood of false alarms (for example, procedures for unsettling), are given in Clause 6.

4.1.3 Design objectives for hold-up alarm systems (HAS)

HASs should be designed, installed and configured in accordance with the recommendations given in this British Standard to:

- a) provide effective confirmation facility; and
- b) minimize the likelihood of false alarms (see 4.5).

NOTE Methods of HUA confirmation are given in Clause 5 and Clause 7.

4.2 Alarm confirmation technology

COMMENTARY ON 4.2

Alarm confirmation technology aims to provide high confidence that an alarm signal has been caused by genuine intrusion alarm or HUA or genuine attempted intrusion or attempted HUA.

4.2.1 Intruder alarm systems (IAS)

All IASs should incorporate sequential confirmation technology (see 5.4) and may also include audio confirmation technology (see 5.2) and/or visual confirmation technology (see 5.3) as appropriate to the needs and expectations of the client and the environment at the supervised premises.

4.2.2 Hold-up alarm systems (HAS)

HASs should incorporate one or a combination of the following alarm confirmation technologies:

- 1) audio confirmation (see 5.2);
- 2) visual confirmation (see 5.3);
- 3) sequential confirmation (see 5.4);
- 4) telephone confirmation (call back) (see 7.4).

An explanation of the selected combinations should be provided to the user/client to ensure the most appropriate confirmation technology is used.

Unless agreed with the client in writing, sequential confirmation should be used only in conjunction with telephone confirmation.

The installer should obtain written confirmation of the client/user's acceptance of the chosen option, and detail how the confirmation works.

4.3 Transmission fault signals

The ARC should treat the following two circumstances, involving transmission fault signals, as confirmed alarms as there is likely to be high confidence that there is genuine alarm:

- 1) If an ARC receives a transmission fault signal (dual path signalling systems only) followed by an alarm signal, or an alarm signal followed by a transmission fault (single and dual path systems) from the same supervised premises during a single set period of up to a maximum of 96 hours.
- 2) If two transmission fault signals exist at the same time from the same supervised premises, one from each of two transmission paths of different technologies (e.g. cable and radio) during a single set period of up to a maximum of 96 hours.

The combination of a transmission fault signal and a HUA condition should be interpreted as a confirmed HUA.

NOTE 1 Connection to two transmission paths is optional and by agreement with the client.

Where single path signalling is proposed, the following warning should be reproduced in the system design proposal and as-fitted document in bold type following the description of the signalling method:

"IMPORTANT

Your attention is drawn to the fact that failure or compromise of single path signalling cannot be passed to the police. While the failure persists, subsequent alarms cannot be notified to the alarm receiving centre and passed to the police."

NOTE 2 The connection to two transmission paths does not remove the need for equipping the alarm system with alarm confirmation technology.

Where transmission faults are to be notified, the alarm company should inform the client in writing, at the time of arranging the alarm monitoring agreement between the alarm company and the client, of the actions to be taken by the ARC upon receipt of a transmission fault signal or transmission fault signals.

NOTE 3 An example of ARC alarm handling procedures for alarm signals associated with transmission fault signals is given in Annex B.

NOTE 4 An example of ARC procedures for handling two transmission fault signals is given in Annex C.

4.4 Informing the alarm receiving centre (ARC) of changes in police response

As soon as the alarm company becomes aware of any I&HAS having been taken off or put back on police response, the alarm company should inform the ARC.

4.5 Design recommendations for hold-up alarms systems (HAS) using confirmed technology

The HAS should be installed to minimize the risk of accidental operation.

To minimize the risk of false activation:

- a) HD on CIE or ACE should be segregated from the main keys, dedicated, defined and contain two separate buttons with synchronized push.
- b) HD on CIE or ACE should be engineer programmed only (default "off").
- c) Single action "single push devices" should not be used.
- d) Time delay trigger devices should not be used.
- e) Portable HD (wireless devices) should be dedicated, should not incorporate any other functionality, and should have two separate buttons with synchronized push to activate.
- f) Duress codes should be used only where the risk makes it necessary and as permitted by the relevant response authority.
- g) Duress facility should be engineer programmed only (default "off").

5 Design, installation and configuration of I&HASs incorporating alarm confirmation technology

5.1 General

5.1.1 Design process

The design and configuration of I&HASs incorporating alarm confirmation technology, should take into account the needs and expectations of the client and the required response to alarms. The design process should incorporate the entire supervised premises.

NOTE 1 It is a matter of system design, in meeting the needs and expectations of the client, as to whether alarm confirmation technology is applied to every room or area within the supervised premises, or only to certain rooms or areas.

Consideration should be given to the use of extended format reporting.

NOTE 2 Extended format reporting can be helpful in providing additional information about intrusion, including:

- a) the locations of detectors that have activated;*
- b) multiple activations of detectors;*
- c) identification of perimeter detectors that have activated.*

Detectors installed outside the supervised premises should not contribute to the generation of audibly, visually or sequentially confirmed alarms.

NOTE 3 Remote monitored, detector activated Closed Circuit Television (CCTV) systems conforming to BS 8418, may incorporate detectors installed outside the supervised premises. Activations of such detectors are eligible for police response if there is positive evidence in images, of conditions requiring an emergency response and/or of actual criminal activity.

5.1.2 Provision of effective confirmation facility

Depending upon the needs and expectations of the client, one of the following effective confirmation facility options should be employed:

- a) An effective confirmation facility throughout the entire supervised premises.*

The IAS should be designed and configured such that when an intruder enters any part of the supervised premises, other than by the designated means of entry:

- 1) the IAS is capable of providing confirmation of activity throughout the entire supervised premises;
- 2) there is a reasonable expectation that the IAS provides such confirmation (provided that the intruder has gained access by a route intended to be supervised by the alarm system).

- b) An effective confirmation facility throughout specified parts of the supervised premises.*

The IAS should be designed and configured such that when an intruder enters specified parts of the supervised premises, other than by the designated means of entry:

- 1) the IAS is capable of providing confirmation of activity throughout the specified parts of the supervised premises;
- 2) there is a reasonable expectation that the IAS provides such confirmation (provided that the intruder has gained access by a means/route intended to be supervised by the alarm system).

The system design proposal and the as-fitted document should identify the specified parts of the supervised premises that do, and do not, have effective confirmation facility.

It is emphasized that designation as confirmed should be made on a case-by-case basis for each alarm condition, as it might not be possible to say that all alarm conditions originating from a given IAS result in a confirmed alarm.

NOTE It is preferable to use the phrase "IAS incorporating alarm confirmation technology" or "IAS capable of generating confirmed alarms", and not "confirmed systems" because such IAS might sometimes generate unconfirmed alarms.

5.1.3 Control indicating equipment (CIE) and notification equipment

The recommendations of Annex H should be followed.

The CIE and notification equipment should be located and supervised to minimize the risk of vandalism or sabotage.

NOTE It is preferable for the CIE, signalling and network equipment to be located in an area where a confirmed activation will be generated.

5.2 Design and configuration of audio confirmation I&HASS

5.2.1 General

The system design proposal and as-fitted document should clearly state the scope, extent and coverage of the audio confirmation facility, including those areas within the supervised premises that are within the expected range and proximity of ALDs.

ALDs should be sited to avoid any noise sources that interfere with audio listen-in by the ARC operator.

Service personnel should liaise with the user or the client before starting any maintenance procedures that would enable audio to be listened-in to either locally or remotely.

The audio confirmation technology used should be audio confirmation of intruder detection (see 5.2.2), audio confirmation of AMD activation (see 5.2.3) or a combination of the two methods.

IASs equipped with audio confirmation of intruder detection should also be configured to generate sequentially confirmed alarms.

5.2.2 Audio confirmation of intruder detection and hold-up

When a detector in an IAS incorporating audio confirmation technology is activated causing an alarm condition, audio should be transmitted from the supervised premises to the ARC for interpretation.

In parts of the supervised premises with audio confirmation, all detectors, HD, CIE and notification equipment should be sited within the expected range of an ALD.

The area of coverage of an ALD should be greater than the area of coverage of any accompanying detector(s) or HD.

When the supervised premises can be occupied whilst part of the IAS is set, the ALD covering the occupied part of the premises and associated detectors, should be isolated from the IAS. When audio confirmation of HD is provided, audio capability should be available to cover all HDs.

In an I&HAS containing subsystems, only ALDs in the activating area should be capable of providing audio capabilities.

Where audio confirmation of intruder or hold-up detection is installed, there should be:

- a) stored audio of not less than 10 seconds immediately before an alarm condition, which is stored at the supervised premises ready for transmission to the ARC;
- b) stored audio immediately after an alarm condition, which is stored at the supervised premises ready for transmission to the ARC:
 - 1) Where the audio link between the supervised premises and the ARC is initiated by the ARC (i.e. dial back), not less than 15 seconds of audio is stored.
 - 2) Where the audio link between the supervised premises and the ARC is initiated automatically by equipment at the supervised premises (i.e. auto dial), stored audio of duration not less than the time taken to establish the audio link under normal operating conditions.
- c) the facility for the ARC to receive live audio.

Unless an alarm condition has been received at the ARC, the only other means available to listen-in to the supervised premises should be those accessible via the service personnel functions of the CIE at the supervised premises.

5.2.3 Audio confirmation of audio monitoring device (AMD) activation

When sounds trigger an AMD in an IAS incorporating audio confirmation technology, audio should be transmitted from the supervised premises to the ARC for interpretation.

The system design proposal and as-fitted document should clearly state the scope, extent and coverage of the AMD facility, including those areas within the supervised premises that are within the expected range and proximity of AMDs.

In parts of the supervised premises with audio confirmation, all detectors, CIE and notification equipment should be sited within the expected range of an AMD and its accompanying ALD.